

# Weekly Report

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## Research

- **Ongoing VAST 2012 Survey** I got VisWeek 2012 disk image from Jiayi Xu on Wednesday and began to do this year's paper survey from Thursday. [1], [2] and [3] are first three papers to be chosen as intensive readings. In this year there are two papers related to active-learning-based visual analysis ([1] and [3]). Furthermore, I would like to report [1] in group seminar next week.

- **Ideas for VIS2013**

1. I talked with Haidong about transfer learning applications in visual analysis this week. There are some rough ideas about it:
  - We may create a model of user's focus, intention, activities and analytical process to encode his/her analysis habits and preferences.
  - This model, as "knowledge of user", can reflect user's behavior in a specific analysis scenario.
  - Like last year's InfoVis best paper [4], we can contribute some frameworks or methodologies to handle this kind of transfer scenario.
2. I came back to consider the idea of model mixture (which should be "ensemble" in the field of data analysis and mining) mentioned 3 weeks ago. After a preliminary investigation on several papers in VAST 2012, I believe that this kind of framework might be an appropriate solution to integrate VA with DM together, which at least has no related works till now. I started to read [5] this week for more detail investigation.
3. I read Prof.Qu's email material about November's idea evaluation again. I will be concentrating on following points until my ideas are stabilized before December:
  - Contributions
  - Action plan
  - Unsolved issues
  - Expected experiment

I will maintain a template for myself with my ideas from next week.

- **Rough idea on Taobao categorical data (cont.)** I talked with Xinxin Huang about the LDA-based analysis approach mentioned last week during brainstorming on Monday, however we found that the target problem was now quite different from Xinxin's, so this idea would be considered later.

## Practice & Skills

- **openFramework's Migration to Qt (cont.)** The combination of event loops from both frameworks seems to be a problem. Until now there is no solution available on the Internet on this issue. The best solution I can figure out now is to put the two loops separately into two different POSIX threads and connect them with Qt's Signal and Slot mechanism. I will try it some day next week to see if it is feasible.  
The aim of this work is to make an easy-to-use framework for VAG with Processing-like programming interfaces and high-performance rendering and computing power based on C++. I will continue to implement something every week in the following year.

## Miscellaneous

- **InfoVis 2012 Winter** In this week I have discussed with Jing Xia several times about the structure of our InfoVis Course, and I will finish the initial version of the chapter on data before next Wednesday.

## Plan for Next Week

- Continue to narrow down my ideas according to the template described in Research section above.
- Prepare for paper report in group seminar next week.
- From this week on I have to spend several days on preparing for the autumn final exam on Convex Analysis.

## References

- [1] F. Heimerl, S. Koch, H. Bosch, and T. Ertl, "Visual Classifier Training for Text Document Retrieval," *IEEE Transactions on Visualization and Computer Graphics*, vol. 18, no. 12, pp. 2839–2848, 2012.
- [2] M. S. Hossain, P. K. R. Ojili, C. Grimm, R. Muller, L. T. Watson, and N. Ramakrishnan, "Scatter/Gather Clustering: Flexibly Incorporating User Feedback to Steer Clustering Results," *IEEE Transactions on Visualization and Computer Graphics*, vol. 18, no. 12, pp. 2829–2838, 2012.
- [3] B. Hoferlin, N. Rudolf, M. Hoferlin, W. Daniel, and H. Gunther, "Inter-Active Learning of Ad-Hoc Classifiers for Video Visual Analytics," in *Visual Analytics Science and Technology (VAST), 2012 IEEE Conference on*, 2012.
- [4] M. Steinberger, M. Waldner, M. Streit, A. Lex, and D. Schmalstieg, "Context-Preserving Visual Links," *IEEE Transactions on Visualization and Computer Graphics*, vol. 17, no. 12, pp. 2249–2258, 2011.
- [5] J. F. Elder and G. Seni, *Ensemble Methods in Data Mining: Improving Accuracy Through Combining Predictions*. Morgan & Claypool Publishers, July 2010.